

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A semiconductor device comprising:

a semiconductor substrate of a first conductivity type, the semiconductor substrate having a surface;

a gate oxide film formed on the surface of the semiconductor substrate;

a gate electrode formed on ~~top of the semiconductor substrate through the intermediary of a~~ the gate oxide film;

a source and a drain both of a second conductivity type, formed [[in]] on the surface of the semiconductor substrate, the source and the drain having a first depth from the surface of the semiconductor substrate;

a source side impurity layer of ~~[[a]]~~ the first conductivity type formed so as to extend from inside the source at a second depth that is shallower than the first depth, to directly underneath the gate electrode at a third depth that is equal to or deeper than the first depth; and

a drain side impurity layer of the first conductivity type formed so as to extend from inside the drain at the second depth to directly underneath the gate electrode at the third depth[[,]] ~~wherein the source side impurity layer has a portion thereof directly~~

~~underneath the gate electrode, formed at a depth deeper from the surface of the semiconductor substrate than a portion thereof inside the source while the drain side impurity layer has a portion thereof directly underneath the gate electrode, formed at a depth deeper from the surface of the semiconductor substrate than a portion thereof inside the drain.~~

Claim 2 (Canceled)

Claim 3 (Currently Amended): A semiconductor device according to claim 1, wherein the source and the drain have a LDD region formed in ~~[[the]]~~ a vicinity directly underneath ~~[[both]]~~ sides of the gate electrode, respectively, and the source side impurity layer and the drain side impurity layer are formed in respective portions of the semiconductor substrate, directly underneath ~~[[of]]~~ the LDD regions.

Claim 4 (Currently Amended): A process of fabricating a semiconductor device comprising ~~the steps of:~~

forming a semiconductor substrate of a first conductivity type, the semiconductor substrate having a surface;

forming a gate oxide film and a gate electrode on ~~[[top]]~~ the surface of the semiconductor substrate;

forming a sidewall on both sides of the gate electrode;

forming a surface covering film on exposed portions of the surface of the semiconductor substrate;

forming a source and a drain beneath the surface covering film by introducing a dopant of a second conductivity type into ~~[[in]]~~ the semiconductor substrate through the surface covering film, wherein the source and the drain have a first depth from the surface of the semiconductor substrate;

removing the sidewalls so as to expose the surface of the semiconductor substrate near the gate electrode; and

forming a source side impurity layer and a drain side impurity layer by introducing a dopant of ~~[[a]]~~ the first conductivity type into ~~[[in]]~~ the semiconductor substrate ~~through the intermediary of portions of the surface where the sidewalls have been removed, and the surface covering film~~ and into the exposed surface of the semiconductor substrate near the gate electrode,

wherein the source side impurity layer extends from inside the source at a second depth that is shallower than the first depth, ~~[[side]]~~ to directly underneath the gate electrode~~[[,]]~~ and has a portion thereof, formed directly underneath the gate electrode at a third depth that is equal to or deeper than the first depth ~~deeper from the surface of the semiconductor substrate than a depth thereof, inside the source, and~~

~~[[while]]~~ wherein the drain side impurity layer extends from the drain at the second depth ~~[[side]]~~ to directly underneath the gate electrode~~[[,]]~~ and has a portion thereof, formed directly underneath the gate electrode at a depth deeper from the

~~surface of the semiconductor substrate than a depth thereof, inside the drain~~ at the third depth.

Claim 5 (Currently Amended): A process of fabricating a semiconductor device according to claim 4, further comprising ~~the step of~~ forming LDD regions of ~~[[a]] the~~ second conductivity type, in ~~[[the]]~~ a vicinity of the gate electrode, and in respective regions directly above the source side impurity layer and the drain side impurity layer.

Claim 6 (Currently Amended): A process of fabricating a semiconductor device according to claim 5, further comprising ~~the step of~~ forming second sidewalls covering both sides of the gate oxide film and the gate electrode, respectively, on top of the LDD regions.

Claim 7 (Canceled)

Claim 8 (Currently Amended): A process of fabricating a semiconductor device according to ~~claims~~ claim 4, wherein said ~~the step of~~ forming ~~[[the]]~~ a source side impurity layer and a drain side impurity layer is conducted by an oblique ion implantation, so that ~~step for forming~~ the source side impurity layer and the drain side impurity layer ~~so as to be extended~~ extend up to regions directly underneath the gate electrode, respectively.

Claim 9 (Original): A process of fabricating a semiconductor device according to claim 4, wherein the surface covering film is formed by oxidizing the surface of the semiconductor substrate.

Claim 10 (New): A process of fabricating a semiconductor device according to claim 8, wherein an angle of the oblique ion implantation is in a range of about 30 to 40 degrees.

Claim 11 (New): A semiconductor device comprising:

- a semiconductor substrate of a first conductivity type having a surface;
- a gate oxide film formed on the surface of the semiconductor substrate;
- a gate electrode formed on the gate oxide film;
- a source and a drain formed on the surface of the semiconductor substrate, the source and the drain having a second conductivity type and a first depth from the surface of the semiconductor substrate; and
- a pair of pocket regions having the first conductivity type, formed in the semiconductor substrate, the pocket regions respectively extending from inside the source and the drain at a second depth that is shallower than the first depth, to underneath the gate electrode at a third depth that is equal to or deeper than the first depth.

Claim 12 (New): A semiconductor device according to claim 11, further comprising a pair of LDD regions formed on the surface of the semiconductor substrate beneath the gate electrode.

Claim 13 (New): A semiconductor device according to claim 11, further comprising a pair of sidewalls formed on sides of the gate oxide film and the gate electrode.

Claim 14 (New): A semiconductor device according to claim 13, further comprising a pair of LDD regions formed on the surface of the semiconductor substrate substantially beneath the sidewalls.

Claim 15 (New): A semiconductor device according to claim 13, wherein the sidewalls are formed of silicon oxide.

Claim 16 (New): A semiconductor device according to claim 15, wherein the silicon oxide is formed by CVD.

Claim 17 (New): A semiconductor device according to claim 11, wherein the gate electrode is formed of polysilicon.

Claim 18 (New): A semiconductor device according to claim 11, wherein a thickness of

the gate oxide film is about 2nm.

Claim 19 (New): A semiconductor device according to claim 11, wherein a thickness of the gate electrode is about 100 to 200 nm.